

MULTI-CONFIGURABLE EXERCISE DEVICE

CROSS-REFERENCE TO RELATED APPLICATION

[001] The present application claims priority to copending US provisional
5 application entitled "Multi-configuration tri-block fitness training apparatus and
exercise system," having serial no. 60/420,184, filed by inventor Edward P. Kastelic,
which is entirely incorporated herein by reference.

BACKGROUND OF THE INVENTION

Field of the Invention

10 [002] The present invention relates generally to an exercise device and,
more specifically, to an exercise device that can be arranged into varying
configurations allowing the user to perform a variety of exercises and activities.

Background of the Invention

[003] There are many exercise devices on the market today. The exercise
15 community is continuously searching for an exercise device that provides maximum
health and weight loss results while still being functional and easy to store away.

Prior exercise apparatus have been disclosed in the following United States patents:

U.S. Pat. No. 6402664 (TJ Marston), U.S. Pat. No. 6206805 (KJ Helton, et al), U.S.
Pat. No. 6063007 (D Sithole), U.S. Pat. No. 5899838 (LJ Jacobs), U.S. Pat. No.
5855536 (WT Wilkinson), U.S. Pat. No. 5512026 (WT Wilkinson), U.S. Pat. No.
5 5474509 (DW Hodgdon), U.S. Pat. No. 5354247 (WT Wilkinson), U.S. Pat. No.
5066001 (WT Wilkinson), U.S. Pat. No. 4478413 (JT Siwula), U.S. Pat. No. 4223945
(E Nikitits), U.S. Pat. No. 3229430 (W Berg), U.S. Pat. No. 4026016 (L Heftel), U.S.
Pat. No. 2575593 (JC Perry), U.S. Pat. No. 2097273 (SE Feist), U.S. Pat. No.
1818428 (M Paysen), U.S. Pat. No. 310226 (DB Rice et al.). None of the above

10 patents, however, discloses the aspects of the current invention.

Summary of the Invention

[004] The invention is summarized below only for purposes of introducing
embodiments of the invention. The ultimate scope of the invention is to be limited
only to the claims that follow the specification.

15 [005] Generally, the invention is incorporated in an exercise device
comprising three blocks: a "first block", a "second block" and a "third block". Each
block has a horizontal platform (herein, "first horizontal platform", a "second
horizontal platform" and a "third horizontal platform") upon which the user can stand
on and perform all types of exercise activity. It is preferred that three blocks are

connected together by two hinges (herein, a "first hinge" and a "second hinge"). It is also preferred that the three blocks be of graduating heights.

[006] It is preferred that the first hinge be connected between the first block and a first vertical corner of the second block so that the first hinge rotates about an
5 first axis that that is perpendicular to the plane formed by the first horizontal platform. It is also preferred that the second hinge be connected between the third block and the second vertical corner of the second block so that the second hinge rotates about a second axis that that is perpendicular to the plane formed by the second horizontal platform. In the preferred embodiment, the first vertical corner of the
10 second block is diagonally opposite from the second vertical corner of the second block. By configuring the blocks and hinges this way, an "accordion-like" device is achieved to allow the user to adjust the exercise device into a variety of configurations and orientations.

[007] The exercise device of the present invention allows the user to perform
15 a variety of exercises and activities. Connecting the three blocks of varying heights by swivel means at the corners allows for unlimited possibilities of configurations, exercises, stabilization of apparatus, direction, and range of motion. Each block can be easily disassembled, unlocked, disconnected or unhinged and neatly stacked for purpose of portability. The multi-tiered system has "ready to go" inherent
20 progressive resistance. The range of motion possibilities allows arcs of upper or lower torso limb movement in all planes of motion with increased vertical depth and

spheres. The exercise device can be used in unison with other types of exercise tools such as dumbbells, weighted pipes, sticks, and medicine balls.

[008] The exercise device can also have insertion points on the platforms to further increase the range of activities. Insertion points allow for the attachment of one or more stabilizer bars, pipes with handle for additional individual balance support, and other exercise enhancing attachments. An additional height level cap can be placed on each level to build a wider and level base. The wider base can be used for plyometric type exercises, single/dual foot step-ups when unit is in "tri-fold" configuration and when configured inline (I formation) it makes a sturdy weight bench.

[009] The apparatus is a strength and bodybuilding tool for the upper body as well, useful for bi-level push-ups, dips, and abdominal balance and bridge movements and holds at multiple-levels. Along with resistance from range of motion and varying heights and planes of movement, the exercise device works synergistically and is intended to work in unison with resistances such as dumbbells, weighted pipes, sticks, medicine balls or other implements. It can be used for individual home or fitness gym use. The exercise device also serves as a flexibility stretching apparatus.

[010] Light strong materials, such as aluminum or plastic or any other durable, light material are the desired construction material. A comfort pad or resistance grip can be added to block platform for increased functionality. Each

exercise device can be assembled and built to varying heights, the top level ideally set to fit to a users' knee level for 90 degree maximum knee bend with single foot placement. Each subsequent lower level is positioned to a proportional height. The exercise device can be built for different sizes of people and leg heights for maximum benefit. Although primarily invented for health and fitness training, the device can also be used as stepladder, bench, or other structural support.

[011] The description of the invention that follows, together with the accompanying drawings, should not be construed as limiting the invention to the example shown and described, because those skilled in the art to which this invention appertains will be able to devise other forms thereof within the ambit of the appended claims.

Brief Description of the Drawings

[012] **FIG. 1** illustrates a first preferred configuration of the exercise device 5.

[013] **FIG. 2** illustrates the opposite side of the first preferred configuration of the exercise device 5 shown in **FIG. 1**.

[014] **FIG. 3** illustrates a second preferred configuration of the exercise device 5.

[015] **FIG. 4** illustrates the opposite side of the second preferred configuration of the exercise device 5 shown in **FIG. 4**.

[016] **FIG. 5** illustrates a first preferred configuration of the exercise device **5** with insertion points, a removable bar, and a height level cap.

[017] **FIG. 6** illustrates a second preferred configuration of the exercise device **5** with insertion points and removable bars.

5 [018] **FIG. 7** illustrates the exercise device **5** having optional stabilizer bars.

[019] **FIG. 8** illustrates a user on a second preferred configuration of the exercise device **5**.

[020] **FIG. 9** illustrates an alternative embodiment of the exercise device **5**.

10 [021] **FIG. 10** illustrates the alternative embodiment of **FIG. 9**, having the first block **10** stacked on top of the second block **20**, and having both the first block **10** and second block **20** stored underneath the third block **30**.

[022] **FIG. 11** illustrates an alternative hinge for use with the alternative embodiment of **FIG. 9**.

15 **Description of Preferred Embodiments**

[023] It is to be understood that the descriptions below are merely illustrative of the presently preferred embodiments of the invention and that no limitations are intended to the detail of construction or design herein shown other than as defined in the appended claims. In this specification, the term "slip hinge" refers to any hinge
20 manufactured for a "take-apart" application. In this specification, the term "latch

hinge" refers to a slip hinge that can be locked into place if desired. In this specification the term "flag hinge" refers to a hinge having total swivel capability (i.e., that allows the hinge to travel a full 360 around the pin). Examples of slip hinges, latch hinges and flag hinges can be found on the website published by H.A. Guden Co., Inc. at www.guden.com.

[024] In the preferred embodiment, the exercise device **5** generally comprises a first block **10** a second block **20**, a third block **30**, a first hinge **40** and a second hinge **50**. The first block **10** further comprises a first height **12** and a first horizontal platform **14**. The second block **20** further comprises a second height **22**, a second horizontal platform **24**, a first vertical corner **26** and a second vertical corner **28**, wherein the first vertical corner **26** is diagonally opposite from the second vertical corner **28**. The third block **30** further comprises a third height **32** and a third horizontal platform **34**.

[025] As illustrated in **FIG. 1**, the first hinge **40** is connected to the first block **10** and the first vertical corner **26** of the second block **20**. As such, the first hinge **40** rotates about a first axis **42** that that is perpendicular to the plane formed by the first horizontal platform **14**. The second hinge **50** is connected to the third block **30** and the second vertical corner **28** of the second block **20**. As such the second hinge **50** rotates about a second axis **52** that that is perpendicular to the plane formed by the second horizontal platform **24**.

[026] It is preferred that the first horizontal platform **14**, the second horizontal platform **24** and the third horizontal platform **34** be rectangular in shape, but most any shape can be used. In a rectangular configuration, it is preferred that a horizontal platform be 8 to 12 inches wide and 14 to 16 inches long.

5 [027] In the preferred embodiment, the exercise device **5** further comprises a first position **60** and a second position **70**, wherein the spatial orientation of the first block **10**, the second block **20** and the third block **30** of the first position **60** is different from the spatial orientation of the first block **10**, the second block **20** and the third block **30** of the second position **70**. For example, **FIGS. 1** and **2** illustrate an
10 exercise device **5** in the preferred first position **60**. By rotating the first block **10** counterclockwise in relation to the second block **20** and by rotating the third block **30** counterclockwise in relation to the second block **20** the exercise device can be converted from the first position **60** to the second position **70**. The preferred second position **70** is illustrated in **FIGS. 3** and **4**.

15 [028] Turning again to **FIGS. 1** and **2**, the first hinge **40** and second hinge **50** are each in a closed position when the exercise device **5** is configured in the preferred first position **60**. In the preferred embodiment, when the first hinge **40** and the second hinge **50** are closed, the first block **10**, the second block **20**, and the third block **30** are arranged according to their width. As shown in **FIGS. 3** and **4**, the first
20 hinge **40** and the second hinge **50** are in an open position when the exercise device **5** is configured in the preferred second position **70**. As such, the first block **10**, the

second block **20**, and the third block **30** are arranged according to their length. The two different configurations allow the user of the exercise device **5** to perform different types of exercises and activities depending on whether the first hinge **40** and the second hinge **50** are open or closed, and the configuration of the first block **10**, the second block **20**, and the third block **30**.

[029] **FIG. 8** shows a preferred embodiment of the exercise device **5** with a user performing an exercise or activity when the first hinge **40** and the second hinge **50** are in the open position, and the first block **10**, the second block **20**, and the third block **30** are arranged according to their length. The exercise device can also be configured and utilized in any position between the first position **60** and the second position **70**. The exercise device **5** is not limited to a three block and two hinge configuration. For example, slip hinges can be placed some or all of the corners of the first block **10**, second block, **20**, and third block **30** to enable the creation of a variety of different shapes and configurations. Likewise, two blocks can be used or more than three blocks can be used.

[030] The placement of the first hinge **40** and the second hinge **50** on opposite sides of the exercise device **5** allows the first block **10**, the second block **20**, and third block **30** to move in an “accordion-like” manner. It is preferred that the first hinge **40** and the second hinge **50** are latch hinges, but slip hinges and flat hinges can also be advantageous. By using a latch hinge, the exercise device can

be locked together during use, disassembled for easy storage and reassembled use as desired.

[031] As pictured in **FIGS. 1- 8**, the exercise device **5** is constructed from wood. In particular, **FIGS. 1-8** illustrate an exercise device **5** constructed using 2" by 4" and 2" x 2" construction grade pine for each box and ½" plywood to form the platforms. Wood construction is suitable and preferred for cost-effective custom-built exercise devices **5**. Many other materials can be used. It is preferred to use aluminum construction for its strength and relatively lighter weight. Plastics, composites and other known structural materials could, of course, be used.

[032] In one alternative embodiment, the first block **10** can be constructed so that it fits inside of the second block **20**, and the second block **20** can be constructed so that it fits into the third block **30**. By constructing the blocks in this fashion and using a slip or latch hinge, the first block **10**, the second block **20**, and third block **30** can be detached from each other and stored inside one another for compact storage.

[033] **FIGS. 9-11** illustrate an alternative embodiment of an exercise device **5** where the first block **10** fits on top of the second block **20**, and the first block **10** and second block **20** fit underneath the third block **30**. The alternative embodiment illustrated in **FIGS. 9-11** is preferably constructed from metal such as aluminum. Each of the three blocks (the first block **10**, the second block **20**, and the third block **30**) comprises a horizontal platform (the first horizontal platform **14** the second

horizontal platform **24**, and the third horizontal platform **34**) supported by four tubular columns **90**. The top of each tubular column **90** can be capped or the top of each tubular column can be used as an insertion point **80** (as discussed more fully in a later section of the specification).

5 [034] Using an embodiment where the blocks could fit inside each other is helpful to store the exercise device **5** inside a bag with drawstring or for the addition of a handle device directly onto the exercise device **5** for portability. In addition, the tubular columns **90** could be detachable from the horizontal platforms using a releasable connection such as a hook and slip lock connection for even more
10 compact storage. Also, the tubular columns **90** could be manufactured in various lengths using a releasable connection such as a hook and slip lock connection to promote compact storage and greater adaptability of configuration.

 [035] For the alternate embodiment of **FIGS. 9-11**, the first hinge **40** and the second hinge **50** are preferably two hollow sleeves **92** connected to each other. The
15 inside diameter of the two hollow sleeves **92** should be marginally bigger than the outside diameter of the tubular column **90** to permit the tubular column to rotate in relation to the two hollow sleeves **92**. In addition, having the inside diameter of the two hollow sleeves **92** be marginally bigger than the outside diameter of the tubular column **90** allows the user to lift one of the blocks out and detach it from the block it
20 was connected to. One or more pins **94** can be inserted into a tubular column **90** to prevent undesired vertical movement of the two hollow sleeves **92**.

[036] For example, from the configuration shown in **FIG. 9**, a user could lift out the first block **10** and separate it from the second block **20**. In addition, the user could also lift out the second block **20** and separate it from the third block **30**. Then, the user could stack the first block **10** on top of the second block **20** and store the first block **10** and the second block **20** underneath the third block **30** as shown in **FIG. 10**. In this alternate configuration, it is preferred that the first horizontal platform **14** and the second horizontal platform **24** be approximately 9 inches wide and 14 inches long. In this alternate configuration, it is preferred that the third horizontal platform **34** be approximately 11 inches wide and 16 inches long.

[037] The heights of the blocks can vary or they can be all the same height depending on the desire of the user. It is preferred, however, that blocks increase in height from the first to the third. More specifically, it is preferred that the third height **32** be permit a user to have a 90° knee bend with single foot placement. It has been found that an exercise device having a first height is between 6 and 10 inches, a second height is between 10 and 18 inches and a third height is between 18 and 24 inches can accommodate a wide range of potential users. More specifically, when it is not practical to custom fit an exercise device to a particular user, it is preferred that the first height be approximately 7 inches, the second height be approximately 14 inches and the third height be approximately 21 inches.

[038] As shown in the drawings, the first block **10**, the second block **20**, and the third block **30** each have a horizontal platform. The first horizontal platform **14**,

second horizontal platform **24**, and third horizontal platform **34** allow the user to easily step onto the exercise device **5** when engaged in an exercise or activity. As an option, the first horizontal platform **14**, second horizontal platform **24**, and third horizontal platform **34** can have a comfort pad, a resistance grip or both. A comfort pad is preferred to be constructed from 1/8 inch rubber, such as is commonly found on exercise equipment. Similarly, a resistance grip can be constructed by adding ribs or other gripping elements to an 1/8" rubber pad, such as is commonly found on exercise equipment in use today. Preferably, the comfort pad and the resistance grip are the same dimensions of the horizontal platforms **14**, **24**, and **34** so that they easily fit onto the exercise device **5**.

[039] Further, in another alternate embodiment of the invention, the horizontal platforms **14**, **24**, **34** can have a plurality of insertion points **80**. Examples of preferred placement of insertion points **80** are shown in FIGS. 5, 6, 9, and 10. The insertion points **80** allow the user to add equipment to the exercise device **5** by inserting the additional equipment into the insertion points **80**. The insertion points **80** are a diameter and a distance apart from each other to allow the additional equipment to be easily inserted and removed from the exercise device **5** as shown in FIGS. 5 and 6.

[040] The additional equipment can include removable bars **82** and height level caps **84**. A removable bar **82** can be of any shape and/or size to facilitate a desired activity. In the preferred embodiment, there can be several removable bars

82. Preferably, the removable bar **82**, such as the ones shown in **FIG. 6.**, is configured to allow the user to do exercises such as push-ups, dips, and pull-ups. Additionally, a user of the exercise device **5** can use the removable bar **82** for balance or stabilization.

5 [041] In addition, one or more height level caps **84** can be placed into the insertion points **80** to build a wider and level base on the exercise device **5**. Preferably, a height level cap **84** for the first block **10** is of a dimension that effectively modifies the first height **12** to be equivalent to the second height **22** or the third height **32** as desired. Likewise, it is preferred that a height level cap **84** for the
10 second block **20** is of a dimension that effectively modifies the second height **22** to be equivalent to the third height **32**. As a result, adding height level caps **84** will result in the top of the modified first block **10**, the second block **20**, and the third block **30** will be flush to provide a flat-surfaced exercise device **5** for the user. Adding height level caps **84** when the exercise device is in the first position **60**,
15 creates a wide and flat exercise device **5** that can be used for plyometric type exercises, single/dual foot step-ups. Adding height level caps **84** when the exercise device is in the second position **70** makes a sturdy weight bench for weightlifting and other exercises.

 [042] Moreover, as shown in **FIG. 7**, it is preferred that the exercise device **5**
20 be equipped with stabilization bars **86**. The stabilization bars **86** are attached to the

exercise device **5** with locking hinges **88**. Further, the stabilization bars **86** provide support to the exercise device **5** to keep it from falling over while in use.

[043] The exercise device **5** is a strength and bodybuilding tool for the upper body as well, useful for bi-level push-ups, dips, and abdominal balance and bridge movements and holds at multiple-levels. Along with resistance from range of motion and varying heights and planes of movement, the exercise device works synergistically and is intended to work in unison with resistances such as dumbbells, weighted pipes, sticks, medicine balls or other implements. It can be used for individual home or fitness gym use. The exercise device also serves as a flexibility stretching apparatus. The range of motion possibilities allows arcs of upper or lower torso limb movement in all planes of motion with increased vertical depth and spheres. The exercise device can be used in unison with other types of exercise tools such as dumbbells, weighted pipes, sticks, and medicine balls. Although primarily invented for health and fitness training, the device can also be used as stepladder, bench, or other structural support.

[044] Although the invention has been described in detail with reference to one or more particular preferred embodiments, persons possessing ordinary skill in the art to which this invention pertains will appreciate that various modifications and enhancements may be made without departing from the spirit and scope of the claims that follow.